sanitary authorities have established "tuberculin dispensaries," where it may be applied to the poorer population under adequate medical supervision. On the other hand many Continental authorities view tuberculin treatment with considerable distrust. The appearance of Dr. Bardswell's report is therefore opportune, and we could have hoped that experience in the King Edward VII. sanatorium might have settled the real value or otherwise of tuberculin in the treatment of consumption. Some of the data obtained seem to be in favour of it, but Prof. Karl Pearson has examined the statistical data, and concludes that they do not show "that obvious and marked advantage of tuberculin treatment which would raise it at once above all suspicion of showing what advantage it does show, owing to selection of patients. Correction for selection may show it with a slight credit or an actual debit. . . . When all selected cases are treated as at present, we shall have no suitable control to determine whether the treatment has any real value, unless indeed we again leave it off." We notice that X-ray photographs do not appear to be a routine method of examination at this sanatorium, which is surprising, and Spengler's picrin method for staining the tubercle bacillus might be adopted with advantage.

(2) This book on isolation hospitals must be regarded as an authoritative one, as Dr. Parsons was a recognised authority on the subject. The past tense is used because the author did not live to see the work through the press, and its correction and completion was undertaken by Dr. Bruce Low. The book contains far more than its title indicates, as it really deals with the whole question of isolation for the preventive treatment of infective diseases. Thus in addition to isolation hospitals, the subjects of home isolation, eucalyptus treatment, and the law in relation to infectious diseases are fully discussed. Under isolation hospitals, the subjects of area, site, design, staffing, removal and discharge of patients, and cost are dealt with. Additional chapters are devoted to the hospital system of the Metropolitan Asylums Board and sanatoria for tuberculosis. A number of plans with descriptions of existing isolation hospitals complete the work, which should be of the greatest value to public health students and authorities.

(3) Dr. Savage has brought together into one volume a mass of valuable data relating to the bacteriology of foods, water, air, soil, and sewage, together with a description of the methods employed for examining them bacteriologically. He himself has contributed much to the subject, and is therefore able to discuss critically the value of the various methods employed, and of the data obtained therefrom. In a final chapter the determination of antiseptic and germicidal power is described, and the composition of the media employed is given in an appendix. The book is a very useful addition to the Cambridge Public Health Series, which is now being issued under the editorship of Dr. Graham Smith and Mr. Purvis. R. T. HEWLETT.

LIGHT AND ITS ACTIONS.

(1) *Photo-Chemistry.* By Dr. S. E. Sheppard. Pp. x+461. (London: Longmans, Green and Co., 1914.) Price 12*s.* 6*d.*

(2) *Photo-Electricity.* By Prof. A. Ll. Hughes. Pp. viii+144. (Cambridge: University Press, 1914.) Price 6*s.* net.

THE interest of scientific workers in the chemical and physical changes brought about by light is shown by the number of works recently published bearing on this subject. The importance of investigations on the action of light can scarcely be over-estimated, seeing that human life is dependent on "that branch of applied photochemistry which is termed agriculture."

(1) Dr. Sheppard gives an account of the principal facts relating to photo-chemistry, and discusses the present state of the theory of the subject. The book is very unequal. So far as the facts are concerned, the description is generally clear, but in the more theoretical portions the author frequently runs amok and indulges in quasi-philosophical discussions which do not add to the lucidity of his argument. The work, unfortunately, justifies the complaints made against the literary style of many men of science. Thus on p. 229 we have a sentence containing fifteen lines, and on the following page a sentence of fourteen lines. The author has a predilection for the use of foreign words and for the introduction into his subject of new terms which are often only vaguely defined, if defined at all. We do not recognise "temps" as an English word, and do not regard *mass* and *measure* as interchangeable terms, though the author speaks of "Radiant Energy in Absolute Mass."

In spite of many faults of presentation the volume will be found useful, as it contains a large amount of matter not available in other English works. The first half of the book deals with the physical side of the subject, and includes chapters on the measurement of light quantities, the energetics of radiation, and the absorption of light. Actual light-sources are also considered, special attention being given to the light of the sun, either in its direct form or as diffused daylight. The mercury vapour lamp scarcely receives ade-

© 1914 Nature Publishing Group

quate recognition. The second part of the book deals principally with the chemical changes due to different forms of radiation. The author summarises his views by saying: "The conception that in photo-chemical change singular intermediate complex ions, or, specifically speaking, veritable latent light-images, are formed, appears the most promising."

(2) The account of photo-electric phenomena given by Dr. Hughes is lucid and concise. The photo-electric effect is regarded as a form of ionisation by light. Most of our information as to such ionisation has been derived from a study of the action in the case of solids and liquids, owing to the fact that in the case of gases ionisation is only brought about by light of extremely short wave-lengths. The aim of the author appears to have been to give a comprehensive view of the present position of the subject. In this he has been successful, though the result is perhaps to mar the historical setting and to deny adequate recognition to some of the earlier workers. Thus the work of Hallwachs and his pupils on the influence of contact potential on photo-electric phenomena is not referred to. The "energy law" which is emphasised in this book was established mainly by the experiments of the author and of Richardson and Compton. It expresses the fact that the maximum emission energy of a photo-electron is a linear function of the frequency of the light. This is in accordance with the quantum theory of radiation developed by Planck and Einstein, and first applied by W. Wien (whose name is not mentioned) in connection with Röntgen rays in 1907.

Both volumes contain a subject index and an index of authors. In the case of the latter volume the index of authors is far from complete.

PHILOSOPHY.

(1) *A Theory of Civilisation.* By S. O. G. Douglas. Pp. 246. (London and Leipzig: T. Fisher Unwin, 1914.) Price 5*s.* net.

(2) *Our Knowledge of the External World, as a field for Scientific Method in Philosophy.* By B. Russell. Pp. vii+245. (London and Chicago: The Open Court Publishing Co., 1914.) Price 7*s.* 6*d.* net.

(1) A READABLE and well-informed treatment of civilisation viewed as the outcome of religious belief. The various "psychic illusions" are considered—Olympianism, Orphism, Christianity, Islam, Buddhism, the ancient religion of Peru, etc.—and it is argued that each religion has elements which tend to an advance in civilisation, these elements being always irrational, for the rational and critical and selfish elements furnish no driving power except as to the individual's own well-being. In course of time disillusionment comes about; the beliefs are gradually abandoned as the intellectual powers—which have grown with the civilisation—assert themselves critically, and there is then a slide down until civilisation and the general intelligence reach such a level of degeneracy that another "psychic illusion" becomes possible. The process then repeats itself; though the author apparently thinks that the crest of each civilisation-wave is, on the whole, higher than the last, the "spirit of evolution" selecting for each successive illusion that which will yield improved results. The interesting question naturally arises as to whether, after Christianity, we shall manage to get along without illusions at all, or whether a new illusion will impose itself, as before. The author inclines to the latter opinion, but wisely refrains from detailed prophecy.

(2) This volume contains Mr. Russell's Lowell Lectures, delivered in Boston last March and April. They deal with the various idealisms—Platonic, Berkeleyan, Bradleyan, etc.—as the title implies, but there is also some acute criticism of Bergson's intuitionism, and a full analysis of the old problems of Achilles and the tortoise, and the impossibility of the moving arrow's motion. The author maintains the fresh and brilliant yet easy style which always makes his writings a pleasure to read, and though, as he says, philosophy in becoming more scientific inevitably becomes less humanly interesting, it is likely to retain devotees as long as it has such exponents as Mr. Russell.

The book is, of course, mainly logical, and the modern position is maintained. "The trivial nonsense embodied in this [Aristotelian] tradition is still set in examinations, and defended by eminent authorities as an excellent 'propædeutic,' *i.e.* a training in those habits of solemn humbug which are so great a help in later life" (p. 33).

"The old logic put thought in fetters, while the new logic gives it wings. It has, in my opinion, introduced the same kind of advance into philosophy as Galileo introduced into physics, making it possible at last to see what kinds of problems may be capable of solution, and what kinds must be abandoned as beyond human powers. And where a solution appears possible, the new logic provides a method which enables us to obtain results that do not merely embody personal idiosyncrasies, but must command the assent of all who are competent to form an opinion" (p. 59).

© 1914 Nature Publishing Group